

A NEW SPECIES OF HOUSTONIA FROM THE CEDAR
BARRENS OF LEE COUNTY, VIRGINIA

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In the Cedar Barrens or Glades of Lee County, Virginia, a few miles southwest of Jonesville, a new species of *Houstonia* has been found. Its description is being presented in this paper. Visits to the barrens in course of phytogeographic fieldwork during 1942 have resulted in the discovery of a number of uniquely interesting finds.¹

The area is an extension of the Great Valley Physiographic Province,² merging into the Cumberland Escarpment,³ revealing conspicuous exposures of upper Ordovician limestone (Stone's River Group) throughout the barrens. Huge cedars compose the dominant tree-growth, and springs rise here and there.

Gattinger's description⁴ of the barrens of Tennessee is fitting here for in some measure the two areas parallel each other in geological aspect and richness in floral rarities.

"Where the soil thins out, leaving here and there the rock exposed, or where from the collapse of subterranean cavities the strata are tumbled about in confusion and earth and humus irregularly distributed, there the heavier timber growth gives out, and the cedar is the predominant growth. Its far-searching roots descend into the crevices and cavities of the age-worn rock. The somber tint of the cedar delineates a cedar barren from its surroundings at a distance, and serves within its environs to bring out with dazzling vividness the beautiful green of the glade grass, aglow with rose-colored petalestemons, sky-blue lobelias, golden Leavenworthias, Schoenoliriums and shrubby hypericums. The pink stonecrop, *Sedum pulchellum*, covers acres of surface yielding again to equal profusion of the delicate white *Arenaria* (*Arenaria patula*), or a low, purple-flowered skullcap (*Scutellaria nervosa*). The *Talinum teretifolium*, span high, with fleshy leaves like a portulaca, the flower resembling the bloom of a phlox, but of the purest carmine, finds room for its tuberous rootlets in the smallest fissures. It will bear transplanting even while flowering, and grows well in the garden. Cream-colored and blue astragals (*Astragalus Plattensis* and *Astragalus caryocarpus*), and a purple, large-flowered, and prostrate psoralea (*Psoralea subacaulis*), phacelias, the blue false indigo (*Baptisia australis*), bluets, and the Carolina anemone (*Houstonia patens*, *Anemone Caroliniana*), verbenas, violets (especially the pansylike *Viola pedata* var. *bicolor*), the dwarf heliotrope (*Heliotropium tenellum*),

¹ Fuller details are to be found in the writer's doctoral thesis.

² Fenneman, Nevin M., *Physiography of the Eastern United States*. 1938. Plates 2 and 3.

³ Butts, Charles, *Geology of the Appalachian Valley in Virginia*. Part 1—Geologic Text and Illustrations. Va. Geological Survey, Bull. 52, 1940. p. 2.

⁴ Gattinger, A., *The Flora of Tennessee*. 1901. Pp. 22-23.

the pale purple *Phlox Stellaria* (which deserves a bed in every garden), and many, many more assemble—a natural conservatory that could fearlessly challenge any flower-garden in the combined effect of gayety and luxuriance. For truth, my honored Tennessee friends, go and see, and learn to appreciate and to preserve such great ornaments of your native land. I cannot dwell longer on this point; suffice it to say that the above are only a few of the most obvious spring flowers, and every succeeding season has its own peculiar growth. The hop tree (*Ptelea trifoliata*), fragrant sumac (*Rhus aromatica*), Carolina buckthorn (*Frangula Caroliniana*), *Forestiera ligustrina*, delightfully fragrant when flowering in July, the Callicarpa, with clusters of rosy flowers and violet berries, and several kinds of hawthorn, are the characteristic shrubs of these barrens. Hackberry, honey locust, winged elm, post oak and shingle oak intermingle in limited numbers with the cedar."

The *Houstonia* has as its associates *Ophioglossum Engelmanni* Prantl, the first recorded for Lee County, *Bouteloua curtipendula* (Michx.) Torr., *Scleria oligantha* Michx., *Agave virginica* L., *Stylophorum diphyllum* (Michx.) Nutt., *Rhamnus caroliniana* Walt., *Opuntia calcicola* Wherry, *Bignonia capreolata* L., *Pentstemon calycosus* Small, *Viburnum rufidulum* Raf., *Senecio Millefolium* T. & G. and *Gnaphalium calviceps* Fernald.

A number of these records, which comprise only a partial list, are striking from the standpoint of distribution and rarity, and will be commented on to furnish pictorial impressions with respect to the unique habitat and its flora. Also attention will be given to the endemic or restricted nature of the flora in the Cedar Barrens or Glades of Tennessee. It is interesting to note that both the barrens around Nashville, Tennessee,¹ and those in Lee County, Virginia, lie in the upper Ordovician limestone (Stone's River Group)—thus the expectancy for a correlated type of flora is high. Indeed the Stone's River Group was named from Stone's River in the Nashville Basin of Central Tennessee where the cedar barrens prevail.²

Unique types characteristic of the Cedar Glade country of Tennessee are *Lobelia Gattingeri* A. Gray; McVaugh states in his treatment of North American species of *Lobelia*³ that it is now known only from three counties in the limestone region, barrens and bluffs, of central Tennessee; *Satureja glabella* (Michx.) Briquet according to Svenson⁴ apparently confined to limestone

¹ Fenneman, *ibid*, footnote 2. p. 433.

² Butts, *ibid*, footnote 3. p. 119.

³ McVaugh, Rogers, *RHODORA*, 38, 1936. p. 346.

⁴ Svenson, H. K., *RHODORA*, 42, 1940. p. 7.

river bluffs and cedar glades in the vicinity of Nashville, Tennessee; *Petalostemon foliosus* A. Gray, "river banks, Interior Low Plateau, Tennessee to Illinois;" *P. Gattingeri* Heller, "rocky calcareous prairies, cedar glades, and grassy hillsides, Interior Low Plateau, Alabama and Tennessee" according to Small¹; *Leavenworthia torulosa* A. Gray, "moist cedar glades, Interior Low Plateaus, North Alabama, Tennessee and Kentucky," Small¹; *Psoralea subacaulis* T. & G., "rocky limestone soil, cedar glades, in the Interior Low Plateau, Tennessee," Small¹; and *Phacelia Bicknellii* Small, "barren soil, Interior Low Plateaus, Tennessee," Small.⁹ The endemic or local nature of the flora of cedar-barren country is evident from these citations, and one has the feeling when exploring in such a habitat that something new is going to turn up. The cedar-glade country of Lee County has never been explored botanically, and the existence of such glades has apparently been unknown to botanists. The area is indeed proving to be a botanical paradise, and as fieldwork proceeds extension of the endemic plants of the barrens of Tennessee into the cedar glades of southwestern Virginia is to be expected.

Of the interesting associates of the endemic *Houstonia*, *Agave virginica* is conspicuous. Search through herbaria reveals that this species has not been collected in Virginia since Clayton first collected it, presumably somewhere in southeastern Virginia, though search there by Fernald and Long has not disclosed its whereabouts. The discovery of *Stylophorum diphyllum*, primarily westward in trend gives us apparently the first record for Virginia. *Penstemon calycosus*, typical of the Interior Lowlands according to Pennell², is here reported in Virginia for the first time. *Senecio Millefolium* is now brought into the Gray's Manual range, a rarity which seemingly has not been collected since 1899 and then only in a few localities in the mountains of North Carolina, South Carolina, and Georgia. *Gnaphalium calviceps*, described from southeastern Virginia by Fernald,³ is present in the cedar glades. Previous to this report it was localized in the former area. It may be seen that one is in an area where the expectancy for new and local things is accentuated.

¹ Small, J. K., Manual of the Southeastern Flora. 1933.

² Pennell Francis W. The Scrophulariaceae of Eastern Temperate North America 1935. p. 215.

³ Fernald, M. L. RHODORA, 37, 1935. pp. 449-50.

Houstonia setiscaphia appears to bring the thought to a reality and is hereby described.

HOUSTONIA setiscaphia, sp. nov. Planta cana, ad 1.7 dm. alta; caulis anguli scabrelli, ad caulis basem setis magis evidentibus; folia oblanceolata; inflorescentia compacta; hypanthium setis pelucidis saepius in costis hispidum, calycis lobi setis in costis mediis marginibusque extus hispidi; corolla 4.5–5 mm. longa, ore 2 mm. lato; capsula ca. 2.5 mm. longa.—VIRGINIA: outcroppings of limestone (Stone's River Group) in the Cedar Glades or Barrens, vicinity of Jonesville, Lee County, July 10, 1942, *Lloyd G. Carr*, no. 1110 (TYPE in Herb. Gray.; ISOTYPE in Herb. Univ. Penn.).

Houstonia setiscaphia differs from its closest relative, *H. canadensis* Willd. (*H. ciliolata* Torr.) in having its calyx-cup conspicuously adorned with translucent hispid hairs, mostly on the ribs, with the outer face of sepals bearing hispid hairs on midribs and margins. It stands apart from *H. canadensis* also in having angles of stem finely scabrous, the scabrous hairs becoming longer near base of stem. Here it is interesting to note as a contrast that Torrey in his description of *H. ciliolata*¹ points out that the stem is "very smooth on every part." The inflorescence is more densely and compactly flowered. The general aspect of the plant is grayish from the grayish hairs, as opposed to the brownish appearance of *H. canadensis*. The average height of fruiting plants is 6.91 inches, the flowering plant from 4.25 to 5.12 inches while *H. canadensis* is generally much lower, ranging from 2.83 to 6.75 inches according to measurements made from thirteen sheets in the Herbarium of the Academy of Natural Sciences. Both cauline and radical leaves are oblanceolate and not spatulate and ovate as in *H. canadensis*. Late-flowering material shows a corolla-length of 4.5 to 5 mm. with a mouth-spread of around 2 mm., as opposed to a corolla-length ranging from 5.66 to 8 mm. and a mouth-spread ranging from 3 to 4.66 mm. in *H. canadensis*.

I appreciate greatly the assistance of Dr. FRANCIS W. PENNELL in drafting the Latin description. I want to thank Professor M. L. FERNALD for studying the type-material and verifying the conclusions reached in this paper.

It is a great pleasure to state here that studies were pursued in

¹ Torrey, John. A Flora of the Northern and Middle Sections of the United States. Vol. 1. 1824. pp. 173–4.

completing work for the Ph.D. under the supervision of Dr. JOHN M. FOGG, Jr., during the tenure of Harrison Fellowships in Botany held during the sessions of 1941-42 and 1942-43 at the University of Pennsylvania. Without the contributions made by Mrs. NELLIE CARR BROPHY, Mrs. FRANCES CARR HENEBRY, and Mrs. MARY CARR BUTLER of Roanoke, Virginia, phases of field work in the southwestern Virginia area would not have been accomplished.

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TWO OF RAFINESQUE'S SPECIES OF TRADESCANTIA.—Dr. Merrill calls to my attention two of Rafinesque's species of *Tradescantia* which seem to deserve a better fate than that accorded them in Anderson & Woodson's *Species of Tradescantia Indigenous in the United States*, Contrib. Arn. Arb. ix. (1935). As a result of study of these two species two names adopted by Anderson & Woodson seem to be clearly antedated by others, one of which should be taken up.

On their p. 75 the monographers maintain *T. canaliculata* Raf. Atl. Journ. i. 150 (1832) for the glabrous species which occurs rather generally through the eastern half of the United States, from Pennsylvania to Minnesota, south to Florida and Texas, and much naturalized farther east. As a synonym they cite *T. ohiensis* Raf. New Flora, ii. 84 (1837—date given by them as 1836¹), changing the spelling to *Ohioensis*. At the latter date Rafinesque particularly said of his *T. ohiensis*: "described in 1814 from a specimen of Dencke given me by Vanvleck." That should have given a clue, although in 1935 the authors could have found, by consulting Index Kewensis, that *T. ohiensis* was originally published by Rafinesque in his *Précis des Découvertes*, 45 (1814). For a plant (*T. canaliculata*) of which Anderson & Woodson cite 19 numbers from Ohio, a species essentially glabrous throughout (as compared with the other Ohio species, *T. virginiana*, which the monographers describe as having "sepals . . . uniformly . . . pubescent") the 1814 diagnosis was unequivocal.

¹ Barnhart, quoting letters from Rafinesque to Torrey, shows that the 2nd part did not come out until "1837 (second half)"—See Barnhart, *Torreya*, vii. 181 (1907),